Hydrotech Discfilter Jar Testing

For Sonoma, CA

Testing Period:
September 7, 2005

Kruger, Inc.
September 27, 2005

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Introduction

Secondary wastewater from Sonoma, CA was tested using the Hydrotech Discfilter bench-scale equipment. The use of in-line coagulation in front of the Hydrotech Discfilter was evaluated by comparing filtration rates to that of the untreated wastewater.

Filtered and raw samples were tested for turbidity and Total Particle Counts. Results of the testing can be found on page 3 of this report. Keep in mind when reviewing the particle count data that the raw results are NOT filtered. This was as over sight on our part.

Jar Testing Procedure

1. Fill jar with 1 liter of water to be tested.
2. Add desired dosage of coagulant, mix 2-3 minutes @ 150 rpm.
3. Turn off mixing and pour 650 mL of sample into test apparatus. Do not allow to settle.
4. Time 10 seconds and measure amount of wastewater that passes through 10 um filter.
5. Take samples for turbidity and Total Particle Counts.

Materials and Methods

- Jar testing unit – supplied by Kruger, Inc.
- Coagulants, aluminum sulfate, ferric chloride and Sumachlor 50 (polyaluminum chloride)
- Hydrotech Discfilter test apparatus with 10 um filter cloth
- Stop watch
- Met One Particle Counter – supplied by Kruger, Inc.
- Turbidimeter – supplied by Kruger, Inc.

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Conclusions

Testing demonstrated that the Hydrotech Discfilter will perform well on raw secondary wastewater from Sonoma, CA. We found that the full 650 mL aliquot of sample was easily filtered through the test apparatus in 10 seconds. The raw turbidity was 1.18 NTU; filtered 0.76 NTU.

Alum and ferric chloride were tested at dosages ranging from 2-10 mg/L with limited improvement in filterability through the Hydrotech Discfilter apparatus. We found that 2 mg/L of alum produced a filtered turbidity of 0.64 NTU however; only 560 mLs were filtered in 10 seconds. Total Particle Counts were reduced to 142 counts/mL in the filtered effluent.

In summary as coagulant dosages increased, the filtration rate decreased through the filtration apparatus. If in-line coagulation is required for this project, we recommend using low dosages of aluminum based coagulant with a sufficient HRT in front of the Hydrotech Discfilter.

ACTIFLO Jar Testing

Project: Sonoma, CA

Job No.: 42050502 Test Location: Cary, NC

Objective: Chemically enhanced filterability

Test Number	Coagulant		5 um	10 um	15 um	20 um	25 um	50 um	Total PC (cnts/mL)		Turbidity (NTU)		Discfilter Test
	Type	(mg/l)	(counts/mL)						Raw	Filtered	Raw	Filtered	10 sec/ X mL
1	Raw		128.4	42.0	23.0	13.4	13.4	7.0	227.2		1.18	0.76	650
2	Alum	10									2.00	0.90	650
3	FeCl3	10									2.20	1.75	250
4	Alum	5									1.23	0.90	610
5	Alum	2	116.2	15.4	7.0	1.2	3.0	0.2		143.0	1.70	0.64	560
6	FeCl3	2	204.4	25.2	6.4	1.8	0.6	0.2		238.6	1.05	0.81	450
7	FeCl3	4	162.2	26.2	6.6	3.2	0.2	0.4		198.8	1.53	1.20	220
8	Sumachlor	3	138.6	19.4	10.4	3.2	4.0	0.2		175.8	1.03	0.76	460
9													
10													
11													
12													
13													
14													
15													

Coagulant: 1.00%

Polymers: NA